

**REMARKS/ARGUMENTS**

The Examiner is thanked for the thorough examination and search and for finding allowable subject matter in Claims 19 and 50-53.

Claims 20, 38 and 44 have been amended.

All Claims are believed to be in condition for Allowance, and that is so requested.

Reconsideration of Claims 20 and 38 objected to under 37 CFR 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim is requested based on Amended Claims 20 and 38 and on the following remarks.

Claims 20 and 38 have been amended to add the word "said" before the phrase "conductive loaded resin-based material" to thereby clarify the intended meaning. For example, Amended Claim 20 now reads:

20. (Currently Amended) The device according to Claim 18 wherein said core structure comprises said conductive loaded resin-based material.

The use of the word "said" makes clear the antecedent basis of the phrase "conductive loaded resin-based material" as defined in base Claim 1. Claim 38 has been similarly

amended to make clear the antecedent basis of the phrase “conductive loaded resin-based material” as defined in base Claim 28. Amended Claims 20 and 38 do, indeed, further limit the subject matter from the previous claim. For example, Claim 1 is drawn to an inductor formed from **a loop of conductive loaded material**. Dependent Claim 18 adds a further element of adding **a core structure** inside of the loop. Dependent Claim 20 adds the further limitation of **the composition of the core structure** being “said conductive loaded resin-based material.” Each claim is patentably distinct with the dependent claims adding elements/limitations onto the antecedent claims.

Reconsideration of Claims 20 and 38 objected to under 37 CFR 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim is requested based on Amended Claims 20 and 38 and on the above remarks.

Reconsideration of Claims 1-18, 20-49, and 54-58 rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al (USP. 5,744,090) is requested based on Amended Claim 44 on the following remarks.

Applicant agrees that Jones et al (Jones) teaches a method to form a conductive fiber for use in an electrostatic cleaning device. In particular, Jones teaches a method to form fibers for an electrostatic cleaning device. These fibers comprise conductive magnetic filler material in a polymer. The polymer and magnetic filler combination is spun into a “fiber” shape that is useful for forming woven textile-like devices (col. 9, lines 6-12). Following formation of this “fiber”, but prior to solidification of this fiber, a

magnetic field is applied to the fiber in order to cause the magnetically responsive conductive materials in the fiber composition to migrate toward the outer periphery of the fiber. (col. 6, lines 54-58)

However, the disclosure in Jones fails to teach a critical feature of Applicant's claimed invention. In particular Jones fails to teach forming a **loop of conductive loaded resin-based material**. Claim 1 of the present application recites this features as shown here:

1. (Original) An inductor device comprising a loop of conductive loaded, resin-based material comprising conductive materials in a base resin host.

Claim 44 is drawn to a method of making an inductor device but contains the same key feature. Amended Claim 44 reads:

44. (Currently Amended) A method to form an inductor device, said method comprising:

providing a conductive loaded, resin-based material comprising  
conductive materials in a resin-based host; and

5 molding said conductive loaded, resin-based material into a loop to form  
an inductor device.

Applicant notes that this amendment merely recites a limitation previously established in Claim 1. Therefore, no new matter is disclosed. Further, since the subject matter of Claim 1 has already been searched in the current examination, the entrance of Amended Claim 44 should result in no additional searching requirement.

***To sustain a finding of anticipation of Claim 1 by Jones, it must be shown that Jones somewhere discloses forming a loop of conductive loaded resin-based material.*** Applicant has carefully reviewed Jones and finds ***no teaching, hint, or suggestion that a Jones forms a loop of conductive loaded resin-based material.*** Furthermore, the Examiner makes several references to Jones. However, these ***citations do not in any way show, teach, hint, or suggest a loop of conductive loaded resin-based material.***

On page 2 of the present office action, the Examiner states:

“Applicant argues that the patent for Jones et al does not discloses a second loop, the loop and the second loop each comprise multiple turns of the conductive load, a metal powder, an electrically insulating layer surrounding the loop, forming any type of inductive device from the fibers. The Examiner respectfully disagrees. ***The Jones et al clearly teach in Fig. 1 & 2: the second loop (215), the loop and the second loop each comprise multiple turns of the conductive load (Fig. 2A), a metal powder (310), an electrically insulating layer surrounding the loop***

***See (Col 5, Line 50), forming any type of inductive device from the fibers See (Abstract). “***

It appears that the Examiner has identified the Fig. 2A as anticipating Applicant's claimed invention. Fig. 2A is only described in the following text quoted directly from Jones:

“FIGS. 2A-2B illustrate an alternative embodiment of a magnet. As illustrated in FIG. 2A, magnet 210 is an electromagnet in which electric current is passed through wire coils 215 wrapped around a soft iron core 217 in order to produce the magnetic field. The fiber passes through the magnetic field via passage 220, as seen in the cross-section of the magnet in FIG. 2B. As seen in FIG. 1C, a fiber passed through the magnet 210 having the arrangement shown in FIGS. 2A and 2B permits the formation of a fiber 300 having stripes of conductive magnetic particles 310 along the outer periphery. Additional or fewer stripes may be obtained by adding or removing additional coil sections to or from the magnet 210. As understood by one of ordinary skill in the art, the magnetic field strength produced by the magnet having the arrangement shown in FIGS. 2A and 2B depends on the number of turns of the coiled wire 215, the size of the current passing through the coils, and the magnetic permeability of the core 217 (column 7, lines 47-64).

The first sentence of the above passage states that, ***“magnet 210 is an electromagnet in which electric current is passed through wire coils 215 wrapped around a soft iron core 217 in order to produce the magnetic field.”*** This sentence therefore identifies, without confusion, that the entire object is a magnet 210 and that the magnet is made from a soft iron core 217 onto which is wrapped wire coils 215. When electrical current passes through the wire coils, the electromagnet generates a magnetic field. The object is a typical, electromagnet.

The second and third sentences of the passage state, ***“The fiber passes through the magnetic field via passage 220, as seen in the cross-section of the magnet in FIG. 2B.”*** This sentence identifies the feature 220 as being a passage through which fiber is passed. But what is the fiber to which the sentence refers? It is the fiber that Jones forms from a combination of polymer, conductive material, and other materials. The composition and formation steps for the fiber are described, in detail, in Columns 3-6 of Jones. The important detail, with respect to the magnet of Fig. 2A, is that Jones specifically teaches applying a magnetic field to the fiber to alter the distribution of magnetic material in the fiber, as shown by:

“Following formation of the fiber shape, but prior to solidifying the fiber, a magnetic field is applied to the fiber in order to cause the magnetically responsive conductive materials in the fiber composition to migrate toward the outer periphery of the fiber.” (Col. 6, lines 54-58)

In the description of the magnet 10 of Fig. 1A, it states that, “the formed fiber passes via passage 20.” In this case, the magnet is a permanent magnet with a center passageway through which the “formed fiber” can be passed for the magnetic treatment of the fiber. This is the context of the description of Fig. 2A. Fig. 2A merely shows another type of magnet 210, in this case an electromagnet, having a center passageway 220 through which the “formed fiber” can be passed to modify the distribution of magnetic material within the fiber prior to the fiber fully solidifying.

The “wire coils” 215 of Fig. 2A clearly are “looped”, or wrapped, around the soft iron core 217. However, the wire coils 215 are in no way identified in Jones as comprising a resin-based material of any type and certainly not a conductive loaded resin-based material. Unless it can be clearly shown that Jones teaches otherwise, the “wire coils” 215 must be interpreted as comprising metal wire, such as copper, as is typical for “wire coils” on an electromagnet common to the art. It cannot be shown that Jones intends otherwise.

The “fiber” of Fig. 2A can only be interpreted as the same “fiber” that Jones defines in Columns 3-6. With respect to the electromagnet of Fig. 2A, this “fiber” is clearly not synonymous with the “wire coils” 215. The context of the prior sections of Jones, as recited above, makes clear that the “fiber” passes through the center passage 220 of the electromagnet 210 to be exposed to the magnetic field generated by the electromagnet 210. Meanwhile, the “wire coils” 215 are wrapped onto the iron core 217

and are critical to generating the magnetic field. These are clearly two different elements that appear to have been merged into a single element by Examiner's remarks.

Most importantly with regards to Claims 1 and 44, nowhere in Jones is there a description, teaching, hint, or suggestion that the "fiber" is ever formed into a loop. Applicant's illustrations, such as Figs. 1a-1c, demonstrate looping the conductive loaded resin-based material to form an inductor device. Without a clear teaching from Jones of forming a loop of conductive loaded, resin-based material, Jones cannot be shown to anticipate Applicant's claimed invention.

Since Jones does not appear to teach the key feature of an inductor device where the inductor is formed from **a loop conductive loaded, resin-based material**, Applicant respectfully requests that the rejection of Claims 1 and 44 as anticipated by Jones be reconsidered. In addition, dependent Claims 2-18, 21-27, 45-49, and 54-58 contain patentably distinct, further limitations on independent Claims 1 and 44. Applicant respectfully requests that the rejection of these claims be reconsidered in light of the patentability of Claims 1 and 44.

Applicant's Claim 28 contains a different feature that is not taught by Jones. In particular, Claim 28 of the present application states:

28. (Original) An inductor device comprising:



a conductive loop; and  
a core structure located inside said loop wherein said core structure  
comprises conductive loaded, resin-based material comprising conductive  
5 materials in a base resin host.

Claim 28 recites an inductor device comprising a conductive loop and a core structure located inside of the conductive loop. In this case, the core structure comprises a conductive loaded resin-based material.

***To sustain a finding of anticipation of Claim 28 by Jones, it must be shown that Jones somewhere discloses forming a core structure of conductive loaded resin-based material.*** Applicant has carefully reviewed Jones and finds ***no teaching, hint, or suggestion that a Jones forms a core structure of conductive loaded resin-based material.***

Referring again to the section of Jones describing Figs. 2A-2B, Jones states that the, ***“magnet 210 is an electromagnet in which electric current is passed through wire coils 215 wrapped around a soft iron core 217 in order to produce the magnetic field.”*** Again, this sentence identifies, without confusion, that the entire object is a magnet 210 and that the magnet is made from a soft iron core 217 onto which is wrapped wire coils 215. When electrical current passes through the wire coils, the electromagnet generates a magnetic field. The object is a typical, electromagnet. This is the only reference in Jones to an inductor core structure.

Claim 28 is not anticipated by Fig. 2A of Jones. Claim 28 read upon Fig. 2A results in a conductive loop mapping to element 215 (which is fine in this case because the conductive loop of Claim 28 is NOT specified as conductive loaded, resin-based material). However, the core structure of Claim 28 does not read upon either (1) element 217 of Fig. 2A because the core structure 217 of Fig. 2A comprises soft iron rather than conductive loaded, resin-based material, or (2) fiber passing through passageway 220 in Fig. 2A because the fiber would not be "located inside" the conductive loop as required by Claim 28.

Since Jones does not appear to teach the key features of the inductor device recited by Applicant's Claim 28, Applicant respectfully requests that the rejection of Claim 28 as anticipated by Jones be reconsidered. In addition, dependent Claims 29-43 contain patentably distinct, further limitations on independent Claim 28. Applicant respectfully requests that the rejection of these claims be reconsidered in light of the patentability of Claim 28.

Reconsideration of Claims 1-18, 20-49, and 54-58 rejected under 35 USC 102(b) as being anticipated by Jones et al is requested based on Amended Claim 44 and on the above remarks.

In addition, Applicant wishes to respectfully disagree with several other findings in the present action.

In regards to Claims 5 and 6 (as discussed on page 3 of the present action), Applicant does not believe that Jones discloses a metal powder that is plated. Applicant has reviewed the cited section, Col. 6, line 24, as well as the entirety of Jones and does not find any reference to metal plating.

In regards to Claims 15, 36, and 56 (as discussed on page 4 of the present action), Applicant does not believe that Jones discloses an electrically insulating layer surrounding said loop (core structure) (Col. 5, Line 53). Applicant has reviewed the cited section, Col. 5, line 53, of Jones. It appears that this section discusses the content of the conductive magnetic material that is used as filler in the polymer of the overall fiber. An insulating magnetic material may be used. Applicant's claimed invention, as recited in Claims 15, 36, and 56, describes an inductive loop formed of the conductive loaded, resin-based material this loop may then further comprise an electrically insulating layer. Jones does not appear to teach forming an electrically insulating layer around the fiber (i.e. element 100 of Fig. 1C). And, Jones does not appear to teach forming an inductor device of the fiber.

In regards to Claims 16, 21, and 37 (as discussed on page 4 of the present action), Applicant does not believe that Jones discloses an electrically insulating layer surrounding the loop as being resin-based material (Col. 6, line 19). As described above, Applicant has reviewed Jones and can find no teaching regarding the forming of an electrically insulating layer around the fiber (i.e. element 100 of Fig. 1C). And, Jones

does not appear to teach forming an inductor device of the fiber.

In regards to Claim 17 (as discussed on page 4 of the present action), Applicant does not believe that Jones discloses the electrically insulating layer surrounding the loop as being flexible (Col. 7, line 50). Jones appears to refer to wrapping the wire coils 215 around a soft iron core 217 (in which case the wire would be flexible). However, as described above, Jones does not appear to teach forming the inductive loop (the wire) out of the conductive loaded, resin-based material as is taught in Applicant's claimed invention.

In regards to Claims 24 and 40-41 (as discussed on page 4 of the present action), Applicant does not believe that Jones discloses a second loop (Fig. 2A). As described above, Jones does not appear to teach forming the inductive loop (the wire) out of the conductive loaded, resin-based material as is taught in Applicant's claimed invention. The wire 215 appears to be just wire.

In regards to Claims 24 and 40-41 (as discussed on page 4 of the present action), Applicant does not believe that Jones discloses a second loop and a core structure located inside said second loop wherein said core structure inductively couples said loops (Fig. 2A). As described above, Jones does not appear to teach forming the inductive loop (the wire) out of the conductive loaded, resin-based material as is taught in Applicant's claimed invention. The wire 215 appears to be just wire. The fiber 300 is not part of the inductive device.

In regards to Claim 25 (as discussed on page 4 of the present action), Applicant does not believe that Jones discloses that said loop and said second loop each comprises multiple turns of said conductive loaded, resin-based material (Fig. 2A). As described above, Jones does not appear to teach forming the inductive loop (the wire) out of the conductive loaded, resin-based material as is taught in Applicant's claimed invention. The wire 215 appears to be just wire. The fiber 300 is not part of the inductive device.

In regards to Claims 26-27 and 42-43 (as discussed on page 4 of the present action), Applicant does not believe that Jones discloses that said loop is used to generate and detect a magnetic field (Abstract). As described above, Jones does not appear to teach forming the inductive loop (the wire) out of the conductive loaded, resin-based material as is taught in Applicant's claimed invention. The wire 215 is part of an electromagnet but appears to be just wire. The fiber 300 is not part of the inductive device.

In regards to Claim 28 (as discussed on pages 4-5 of the present action), Applicant does not believe that Jones discloses an inductor device comprising:

a conductive loop (215) (Abstract, Fig. 2B); and

a core structure (217) located inside said loop wherein said core structure comprises conductive loaded resin-based material (300) comprising conductive materials (310) in a base resin host (220)(Fig. 2)

Applicant notes that the core structure 217 of Jones that located inside conductive loop 215 comprises soft iron (Col. 7, Line 50). The fiber 300 of Jones is not located within the loop 215.

In regards to Claim 44 (as discussed on page 5 of the present action), Applicant does not believe that Jones discloses a method to form an inductor by molding (Col. 3, Line 16). Rather, Jones describes a method to form fibers for an electrostatic cleaning device by spinning.

In regards to Claim 54 (as discussed on page 5 of the present action), Applicant does not believe that Jones discloses a method to form an inductor by extrusion (Col. 5, Line 3). Rather, Jones describes a method to form fibers for an electrostatic cleaning device by spinning.

In regards to Claim 55 (as discussed on page 5 of the present action), Applicant does not believe that Jones discloses stamping or milling the conductive loaded resin-based material (Col. 5, Line 29). Applicant cannot find reference to either of these processing methods in Jones.

In regards to Claims 56-58 (as discussed on page 5 of the present action), Applicant does not believe that Jones discloses a method to form an electrically insulating layer over the inductive device (Col. 5, Line 50). As discussed above, Applicant has reviewed the cited section, Col. 5, line 50, of Jones. It appears that this

section discusses the content of the conductive magnetic material that is used as filler in the polymer of the overall fiber. An insulating magnetic material may be used.


Applicant's claimed invention, as recited in Claims 56-58, describes an inductive loop formed of the conductive loaded, resin-based material this loop may then further comprise an electrically insulating layer. Jones does not appear to teach forming an electrically insulating layer around the fiber (i.e. element 100 of Fig. 1C). And, Jones does not appear to teach forming an inductor device of the fiber.

Applicants have reviewed the prior art made of record and not relied upon and have discussed their impact on the present invention above.

Allowance of all Claims is requested.

It is requested that should the Examiner not find that the Claims are now Allowable that the Examiner call the undersigned at 989-894-4392 to overcome any problems preventing allowance.

Respectfully submitted,



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